

CLAIMS

1. A collapsible temporary valve for placement in a blood vessel or body cavity of a patient, the temporary valve comprising:

a substantially cylindrical outer valve, permitting substantially unidirectional blood flow of the patient by opening in response to positive fluid flow pressure; and

an inner valve disposed within the outer valve, the inner valve opening in a direction opposite the outer valve and permitting a catheter or other device to pass through the temporary valve;

wherein the temporary valve is expandable to securely fit within the walls of the blood vessel or body cavity upon deployment.
2. The temporary valve of claim 1 further comprising at least one radial support member extending between and securing the inner and outer valves together.
3. The temporary valve of claim 1 further comprising radiopaque markers and/or sonoreflective markers to show the position and/or deployment state of the temporary valve.
4. The temporary valve of claim 1 further comprising bioactive substances, such as heparin and/or thrombolytic agents.
5. The temporary valve of claim 1, wherein the pressure required to open the outer valve is less than that required to open the inner valve.
6. The temporary valve of claim 1, wherein the temporary valve is made of elastic or superelastic material.
7. The temporary valve of claim 1, wherein the temporary valve is passively deployed.
8. A collapsible valve-filter assembly for placement in a blood vessel or other body cavity of a patient to capture embolic material, the valve-filter comprising:

the temporary valve of claim 1;

a filter bag comprising a plurality of pores, the filter bag having a first end and a second end, the first end fixedly attached to the temporary valve and the second end having an opening to permit the catheter to enter the filter bag and out through the inner valve of the temporary valve; and

wherein the filter bag extends distally from the temporary valve.

9. The collapsible valve-filter assembly of claim 8, wherein the opening comprises a unidirectional valve to permit the entry of the catheter into the filter bag.

10. The collapsible valve-filter assembly of claim 8 further comprising additional valves to coincide with one or more of the aortic arch arteries.

11. The collapsible valve-filter assembly of claim 8 further comprising at least one trap to maintain embolic material within the filter bag.

12. The collapsible valve-filter assembly of claim 8 further comprising radiopaque markers and/or sonoreflective markers to show the position and/or deployment state of the temporary valve.

13. The collapsible valve-filter assembly of claim 8 further comprising bioactive substances, such as heparin and/or thrombolytic agents.

14. The collapsible valve-filter assembly of claim 8, wherein the filter bag is a mesh made of any one or a combination of materials selected from the group consisting of: woven fabric, non-woven fabric, knitted fabric, wire, and an open cell foam material.

15. The collapsible valve-filter assembly of claim 8 further comprising an adhesive material to capture or hold the embolic material within the filter bag.

16. The collapsible valve-filter assembly of claim 8, wherein the filter bag comprises a plurality of regions having different pore sizes.